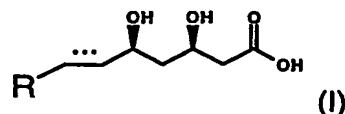


What is claimed is

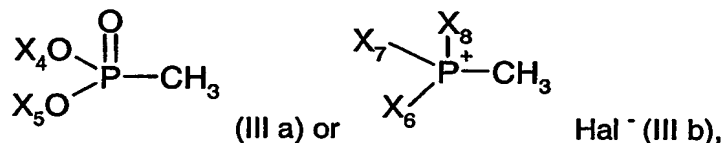
1. A process for the manufacture of an enantiomerically pure form or a racemic form of a compound of formula



or a salt, especially a pharmaceutically acceptable salt with a base, thereof or a lactone

thereof wherein the element  $\cdots$  represents  $-\text{CH}_2-\text{CH}_2-$  or  $-\text{CH}=\text{CH}-$  and R represents a cyclic residue; comprising

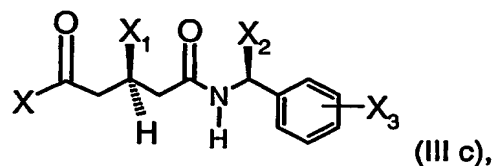
(a) reacting compounds (IIIa) or (IIIb)



wherein  $X_4$  and  $X_5$ , independently of one another, represents  $\text{C}_1\text{-C}_7$ -alkyl or phenyl- $\text{C}_1\text{-C}_7$ -alkyl;

$X_6$ ,  $X_7$  and  $X_8$ , independently of one another, represent phenyl that is unsubstituted or substituted by one or more substituents selected from the group consisting of  $\text{C}_1\text{-C}_7$ -alkyl, hydroxy,  $\text{C}_1\text{-C}_7$ -alkoxy,  $\text{C}_2\text{-C}_8$ -alkanoyl-oxy, halogen, nitro, cyano, and  $\text{CF}_3$ ; and  $\text{Hal}^-$  represents a halide anion;

with a metallated alkane to form the corresponding ylide and then reacting the resulting ylide intermediate with a compound of formula



wherein

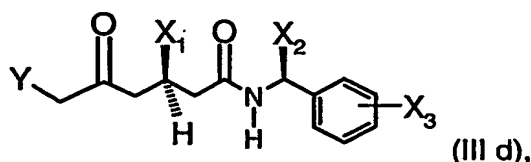
X represents etherified hydroxy, esterified hydroxy, or unsubstituted or mono- or di-substituted amino;

$X_1$  is protected hydroxy;

$X_2$  represents  $\text{C}_1\text{-C}_7$ -alkyl; and

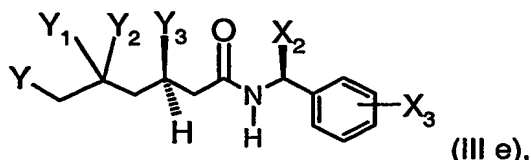
$X_3$  represents hydrogen or one or more substituents, e.g. selected from the group consisting of  $C_1$ - $C_7$ alkyl, hydroxy,  $C_1$ - $C_7$ alkoxy,  $C_2$ - $C_8$ alkanoyl-oxy, halogen, nitro, cyano, and  $CF_3$ ;

(d) optionally, if desired, converting a resulting compound of formula (III d)



wherein  $X_1$ ,  $X_2$  and  $X_3$  have the meanings as defined above and Y represents a group of formula  $(X_4O)(X_5O)P(=O)-$  or  $(X_6)(X_7)(X_8)P^+ Hal^-$  and  $X_4$ ,  $X_5$ ,  $X_6$ ,  $X_7$ ,  $X_8$  and  $Hal^-$  have the meanings as defined above;

into a compound of formula (III e)



wherein  $X_2$ ,  $X_3$  and Y, have the meaning as defined above and wherein

$Y_1$  represents hydroxy or protected hydroxy and  $Y_2$  is hydrogen and  $Y_3$  is hydroxy or protected hydroxy, and  $Y_1$  and  $Y_3$  forming a syn-diol configuration; or wherein

$Y_1$  and  $Y_3$  together represent  $-O-Alk-O-$  and Alk being  $C_1$ - $C_7$ alkylidene; and  $Y_2$  is hydrogen, and  $Y_1$  and  $Y_3$  forming a syn-diol configuration;

(e) reacting a compound of formula (III e)

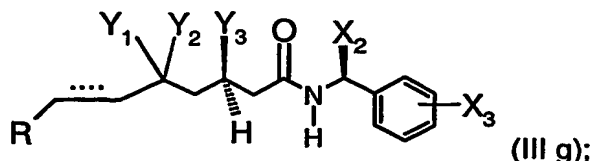
wherein  $X_2$ ,  $X_3$  and Y, have the meaning as defined above and wherein

$Y_1$  represents hydroxy or protected hydroxy and  $Y_2$  is hydrogen and  $Y_3$  is hydroxy or protected hydroxy, and  $Y_1$  and  $Y_3$  forming a syn-diol configuration; or wherein

$Y_1$  and  $Y_3$  together represent  $-O-Alk-O-$  and Alk being  $C_1$ - $C_7$ alkylidene; and  $Y_2$  is hydrogen, and  $Y_1$  and  $Y_3$  forming a syn-diol configuration; or wherein

$Y_1$  and  $Y_2$  together represent the oxo group and  $Y_3$  represents protected hydroxyl (corresponding to compounds of formula (II d);

with an aldehyde of formula (III f)  $R-CH(=O)$  resulting in a compound of formula (III g)

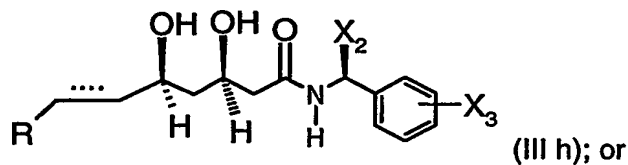


wherein R, X<sub>2</sub>, X<sub>3</sub>, Y<sub>1</sub>, Y<sub>2</sub> and Y<sub>3</sub> and the element  $\text{-----}$  have the meanings as defined above;

if desired, reducing corresponding compounds of formula (III g), wherein the element  $\text{-----}$  is -CH=CH- to result in a compound wherein said element is -CH<sub>2</sub>-CH<sub>2</sub>-; and

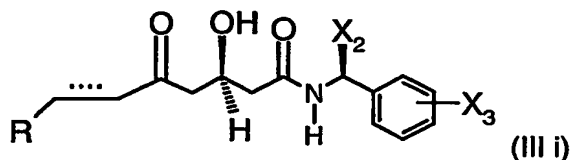
(d) if a compound of formula (III g) is obtained, wherein one of Y<sub>1</sub> and Y<sub>3</sub> is protected hydroxy and the other is hydroxy or both of Y<sub>1</sub> and Y<sub>3</sub> is protected hydroxy and, in each case Y<sub>2</sub> is hydrogen; and Y<sub>1</sub> and Y<sub>3</sub> are forming the syn configuration; or

Y<sub>1</sub> and Y<sub>3</sub> together represent -O-Alk-O- and Alk being C<sub>1</sub>-C<sub>7</sub>alkylidene and Y<sub>1</sub> and Y<sub>3</sub> are forming the syn configuration; and Y<sub>2</sub> is hydrogen; or by removing the hydroxy protection group(s) to a compound of formula



if desired, reducing corresponding compounds of formula (III h), wherein the element  $\text{-----}$  is -CH=CH- to result in a compound wherein said element is -CH<sub>2</sub>-CH<sub>2</sub>-;

(e) if a compound of formula (III g) is obtained, wherein Y<sub>1</sub> and Y<sub>2</sub> together form the oxo group =O; and Y<sub>3</sub> is protected hydroxy (X<sub>1</sub>); converting said compound of formula (III g), to a compound of formula (III i)



by removing the hydroxy protection group;

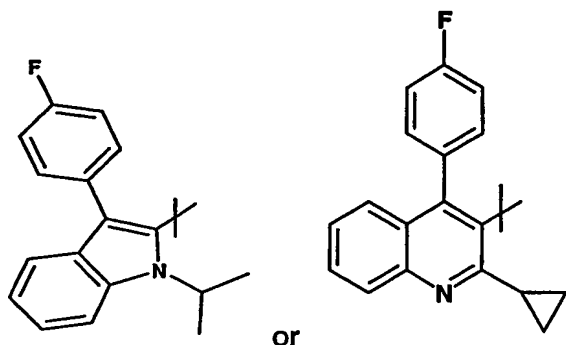
wherein R, X<sub>2</sub>, X<sub>3</sub> and the element  $\text{-----}$  have the meanings as defined above ; and subsequent reduction of said compound of formula (III i) to a compound of formula (III h);

(f) hydrolyzing a compound of formula (III h) to a compound of formula (I) or a salt thereof and

(g) isolating a resulting compound of formula (I) or a salt thereof;

and, if desired, converting a resulting free acid of formula (I) into a salt thereof or into a lactone of formula (I a) or (I b), respectively, or converting a resulting lactone of a formula (I a) or (I b) into an acid of formula (I) or a salt thereof.

2. A process according to claim 1 for the manufacture of a compound of formula (I) or a salt thereof, wherein the element  $\text{-----}$  represents  $-\text{CH}=\text{CH}-$  and R represents the cyclic residue of formula



3. A process according to claim 1 or 2, wherein a compound selected from the group consisting of a compound of formulae (III c), (III d), (III e), (III g), (III h), and (III i) is used, wherein, in each case,  $X_2$  is methyl and  $X_3$  is hydrogen.

4. A process according to claim 1 or 2, wherein a compound of formula (III c) is used, wherein X is N- $C_1$ - $C_7$ alkyl-N- $C_1$ - $C_7$ alkoxy-amino.

5. A process according to claim 1 or 2, wherein a compound selected from the group consisting of a compound of formulae (III c) and (III d) is used, wherein  $X_1$  is tert-butyl-dimethyl-silyloxy, and from the group consisting of a compound of formulae (III e), (III g) and (III h), is used, wherein  $Y_3$  is tert-butyl-dimethyl-silyloxy.